

NOTES ON BROMELIACEAE, X

Lyman B. Smith

MEXICO

TILLANDSIA PUEBLENSIS L. B. Smith var. GLABRIOR L. B. Smith, var. nov.

A var. pueblensis bracteis florigeris mox glabris differt.

Type in the U. S. National Herbarium, No. 2,216,850, collected on perpendicular rocks near Tequisistlan, State of Oaxaca, Mexico, altitude 900-1200 meters, April 1, 1957, by M. B. Foster and O. C. Van Hyning (No. 2937).

TILLANDSIA SOCIALIS L. B. Smith, sp. nov.

T. karwinskyana Schult. in systema Mezii proxima sed lepidibus foliorum adpressis, bracteis florigeris valde lepidotis sepala dissite lepidota superantibus differt.

Densely aggregated in large masses (! Foster & Van Hyning), stemless, flowering 4.5-6 dm. high; leaves rosulate, numerous, 3 dm. long, covered throughout with appressed pale-cinereous scales; sheaths broadly triangular-ovate, slightly darker than the blades, 5 cm. long; blades narrowly triangular, acuminate, 15 mm. wide, involute when dry; scape erect, 4-5 mm. in diameter, glabrous; scape-bracts small but subfoliaceous, exceeding the internodes while still exposing much of the scape; inflorescence laxly bipinnate, few-branched; primary bracts lanceolate, little larger than the floral bracts; branches spreading, 2 dm. long, straight, very slender, laxly few-flowered, their basal half sterile and bracteate; floral bracts erect, lanceolate, 25 mm. long, less than twice the internodes, exceeding the sepals, ecarinate, subchartaceous, nerved, covered with appressed cinereous scales, the apex involute when dry; flowers subsessile; sepals narrowly elliptic, obtuse, 17 mm. long, ecarinate, sparsely lepidote, equally connate for about 3 mm.; petals 30 mm. long, dark purple; stamens exserted. Pl. I, fig. 1: Section of spike x 1; fig. 2: Sepal x 1.

Type in the U. S. National Herbarium, No. 2,216,849, collected on rocks at Bridge of Gravilja, State of Chiapas, Mexico, altitude 1200 meters, April 6, 1957, by M. B. Foster and O. C. Van Hyning (No. 2958).

HONDURAS

TILLANDSIA STEIROPODA L. B. Smith, sp. nov.

A T. incurva Griseb., cujus habitum imitans, vaginis foliorum aterrimis, spicarum basibus sterilibus elongatis bracteis valde reductis praeditis, sepalis posterioribus carinatis differt.

Flowering 30-36 cm. high (! Foster); leaves many in a dense rosette but divergent and not bulbous, 30 cm. long, covered with orbicular appressed scales; sheaths large, distinct, oblong-elliptic, very dark castaneous; blades narrowly triangular, long-

acuminate, ca. 1 cm. wide, involute, cinereous-lepidote; scape erect, 2 mm. in diameter when dry; scape-bracts erect, imbricate, oblong-elliptic with long filiform blades, the upper ones wholly cinereous; inflorescence digitate from about 10 spikes; primary bracts ovate with filiform blades, shorter than the sterile bases of the spikes; spikes suberect, 11-12 cm. long, the lower half sterile with numerous reduced subimbricate bracts, the upper half laxly 8-10-flowered; rhachis straight, slender, quadrangular, lepidote; floral bracts lance-oblong, acute, to 17 mm. long, equaling or exceeding the sepals, ecarinate, thin, sulcate, lepidote; flowers divergent, subsessile; sepals lance-oblong, obtuse but the margins inrolled, thin, sparsely lepidote, subequally short-connate, the posterior ones carinate; petals ca. 3 cm. long, purple, naked; stamens exserted. Pl. I, fig. 3: Spike x $1/2$; fig. 4: Flower x 1; fig. 5: Posterior sepal x 1.

Type in the U. S. National Herbarium, No. 2,216,844, collected in trees, above Tegucigalpa, Honduras, altitude 1200 meters, March 2, 1958, by M. B. Foster (No. 3027).

ECUADOR

TILLANDSIA AEQUATORIALIS L. B. Smith, sp. nov.

A *T. compacta* Griseb., cui affinis, scapi bracteis subfoliaceis, inflorescentia breviter ellipsoidea, bracteis primariis ex ovato triangularibus differt.

Flowering plant at least 5 dm. high; leaves undoubtedly rosulate, 5 dm. long, obscurely and subdensely vestite with closely appressed pale brown-centered scales; sheaths elliptic, large but merging and concolorous with the blades, pale brown toward base; blades ligulate, caudate-apiculate, 5 cm. wide; scape erect, 5 mm. in diameter, glabrous; scape-bracts erect, densely imbricate, subfoliaceous with conspicuous blades; inflorescence densely bipinnate, broadly ellipsoid, 10 cm. long; primary bracts ovate, the lower ones triangular-acuminate and equaling or slightly exceeding the axillary spikes, pale-lepidote especially toward apex; spikes sessile, lance-elliptic, acute, strongly complanate, 5 cm. long, 2 cm. wide, densely 8-flowered; floral bracts elliptic, acute, almost exactly equaling the sepals, sharply carinate, coriaceous, even except for faint nerves by apex and margin, nearly or quite glabrous; pedicels stout, obconic, 4 mm. long; sepals narrowly elliptic, obtuse, 20 mm. long, the posterior ones sharply carinate and about $2/3$ connate; capsule fusiform, 3 cm. long. Pl. I, fig. 6: Leaf-apex x $1/2$; fig. 7: Primary bract and spike x $1/2$; fig. 8: Posterior sepals x 1.

Type in the U. S. National Herbarium, No. 1,196,293, collected on tree, between El Tambo and La Toma, Province of Loja, Ecuador, altitude 1000-2200 meters, September 3, 1923, by A. S. Hitchcock (no. 21328). Isotypes in the Gray Herbarium and in the herbarium of the New York Botanical Garden.

TILLANDSIA FLAGELLATA L. B. Smith, sp. nov.

Facie *Vriesiam didistichoides* (Mez) L. B. Smith simulans sed

bracteis florigeris ecarinatis subduplo majoribus differt.

Flowering plant 25-30 cm. high; leaves numerous, rosulate, 30 cm. long, covered with fine subappressed cinereous scales; sheaths suborbicular, 4 cm. long, brown; blades very narrowly triangular, filiform-acuminate, 15 mm. broad at base, involute; scape erect or suberect, slender; scape-bracts densely imbricate, suborbicular, 2 cm. long, membranaceous, strongly nerved, lepidote, long-flagellate with contorted linear blades; inflorescence subdigitate from about 7 spikes; primary bracts like the scape-bracts but with little or no blade, erect; spikes divergent to spreading from the apex of a long slender erect sterile base, narrowly lanceolate, acuminate at both ends, 4-7 cm. long, 1 cm. wide, strongly complanate, densely few-flowered; rhachis narrowly winged; floral bracts lanceolate, obtuse, to 24 mm. long, exceeding the sepals, ecarinate, thin, strongly nerved, lepidote; sepals oblong-elliptic, obtuse, 16 mm. long, even, glabrous, lustrous; capsule slenderly cylindric, 33 mm. long. Pl. I, fig. 9: Spike x 1; fig. 10: Sepal x 1.

Type in the U. S. National Herbarium, No. 1,196,256, collected on tree, dry hill, Portovelo (Gold Mine near Zaruma), Province of Oro, Ecuador, altitude 600-1000 meters, August 30-September 1, 1923, by A. S. Hitchcock (No. 21245). Isotypes in the Gray Herbarium and in the herbarium of the New York Botanical Garden.

In the absence of complete flowers I am arbitrarily assigning this novelty to Tillandsia since species of this general habit are about evenly divided between Tillandsia and Vriesia.

TILLANDSIA PACHYAXON L. B. Smith, sp. nov.

A T. pastensis André, cui affinis, inflorescentia laxiore per anthesin axi robustissimo haud omnino obecto, bracteis primariis suborbicularibus, spicis late ovatis differt.

Flowering plant probably well over 1 meter high; leaves presumably rosulate, 7 dm. long, obscurely brown-punctulate-lepidote; sheaths broadly elliptic, nearly as long as the blades and slightly darker; blades narrowly lanceolate, acuminate, 7 cm. wide, flat; scape erect, stout; scape-bracts densely imbricate, subfoliaceous with conspicuous blades; inflorescence subdensely bipinnate, cylindric, 6 dm. long (! Hitchcock); axis 12 mm. in diameter, strongly sulcate; primary bracts suberect, suborbicular, the lowest with triangular subfoliaceous apices and exceeding the axillary spikes, the highest merely apiculate; spikes sessile, broadly ovate, acute, strongly complanate, 5 cm. long, 3 cm. wide; floral bracts ovate, cucullate-inflexed at apex, slightly exceeding the sepals, carinate, coriaceous, faintly nerved when dry, soon glabrous; sepals elliptic, obtuse, 25 mm. long, ecarinate, equally very short-connate, sparsely lepidote; petal-blades elliptic, 10 mm. long, light purple (! Hitchcock). Pl. I, fig. 11: Primary bract and spike x 1/2; fig. 12: Sepals x 1.

Type in the U. S. National Herbarium, No. 1,196,457, collected on tree, between Cuenca and Huigra, Provinces of Azuay and Cañar, Ecuador, altitude 2700-3000 meters, September 12-13,

1923, by A. S. Hitchcock (No. 21672). Isotypes in the Gray Herbarium and in the herbarium of the New York Botanical Garden.

PERU

PUYA ANGULONIS L. B. Smith, sp. nov.

P. isabellina Mez et P. dolichostrobila Harms in systema Mezii proxima sed bracteis lucidis valde pectinato-serratis differt.

Flowering about 1 meter high; leaves ca. 5 dm. long (! photo); sheaths suborbicular (inner leaves), glabrous; blades linear-triangular, acuminate, pungent, laxly serrate with brown curved spines 4 mm. long, glabrous and lustrous above, covered with fine appressed cinereous scales beneath; scape erect, ca. 1 cm. in diameter; scape-bracts erect, densely imbricate, the lower foliaceous, the upper ovate with a small foliaceous blade, pectinate-serrate, sublustrous, sparsely lepidote; inflorescence simple, strobilate, cylindric, 5 dm. long, 4 cm. in diameter; floral bracts erect, ovate, acuminate, pungent, 3-7 cm. long, pectinate-serrate, obscurely nerved and rugose, nearly glabrous, lustrous; pedicels obconic, 7 mm. long, compressed and bialate with the wings continuing on the keels of the posterior sepals, sparsely white-stellate; sepals lanceolate, obtuse, 20 mm. long, sulcate, sublustrous, sparsely white-stellate; petals acute, 5 cm. long, about equaling the stamens, lilac (! Angulo) drying yellow, naked. Pl. I, fig. 13: Floral bract x 1; fig. 14: Flower x 1; fig. 15: Anterior sepal x 1.

Type in the U. S. National Herbarium, No. 2,253,857, collected on rocky ground, between Motil and Shorey, Province of Otuzco, Department of La Libertad, Peru, altitude 3200 meters, August 10, 1952, by N. Angulo (No. 1708). Isotype in the herbarium of the Universidad Nacional de Trujillo.

Plate I

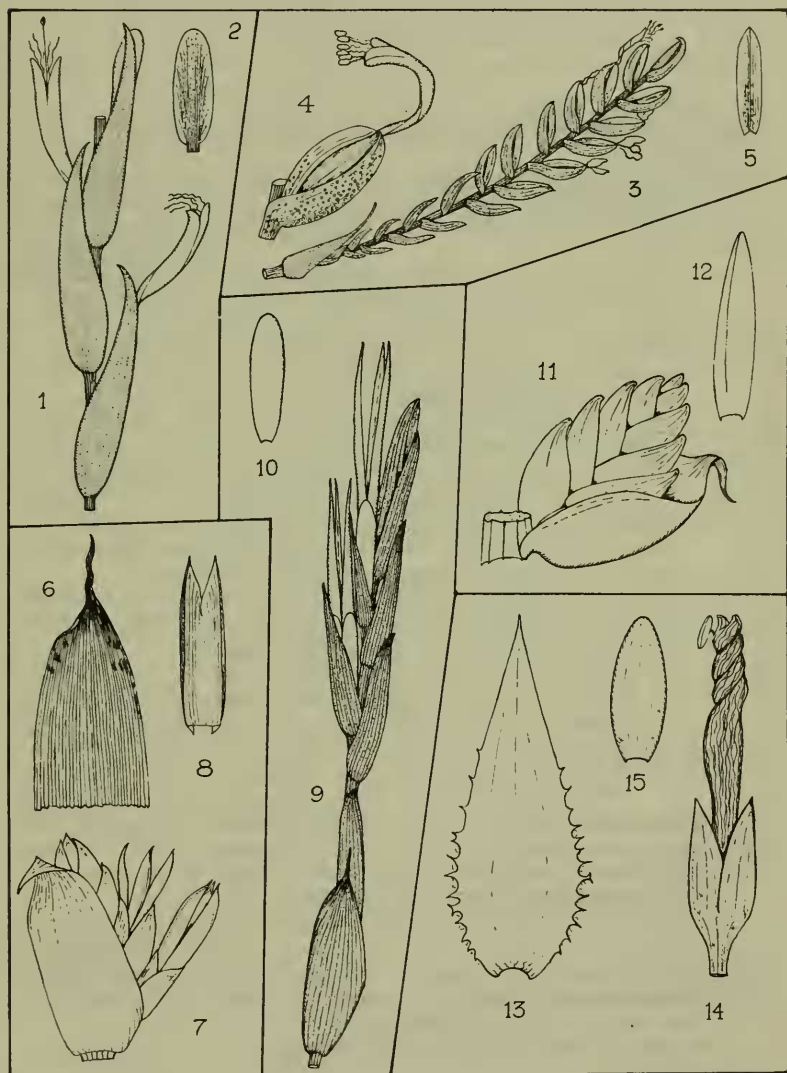


Fig. 1, 2: *Tillandsia socialis*; fig. 3-5: *T. steiropoda*; fig. 6-8: *T. aequatorialis*; fig. 9, 10: *T. flagellata*; fig. 11, 12: *T. pachyaxon*; fig. 13-15: *Puya angulonis*.